

**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE**

AMPEX CORPORATION,)
))
))
) Plaintiff,))
))
) v.) C.A. No. 04-1373 (KAJ)
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))
EASTMAN KODAK COMPANY,) PUBLIC VERSION
ALTEK CORPORATION, and)
CHINON INDUSTRIES, INC.,)
))
))
) Defendants.))

**AMPEX CORPORATION'S OPPOSITION TO DEFENDANTS' MOTION FOR
SUMMARY JUDGMENT OF NON-INFRINGEMENT**

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Declaration of Alan Cavallerano (in Support of Plaintiff Ampex Corporation's Claim Construction Brief)	Cav. ¶
Second Declaration of Dr. George T. Ligler (in Support of Plaintiff Ampex Corporation's Brief in Opposition to Defendants' Motion for Summary Judgment of Noninfringement)	Ligler ¶ and Ligler Ex.
Declaration Dr. George T. Ligler (in Support of Plaintiff Ampex Corporation's Claim Construction Brief)	Ligler C.C.
Papers from the Prosecution History of the '121 patent submitted with the intrinsic evidence (Tab B), accompanying the Joint Claim Construction Chart	Paper __

NATURE AND STAGE OF THE PROCEEDINGS

On October 21, 2004, Ampex Corporation (“Ampex”) filed the Complaint in this action, accusing the digital still cameras designed, manufactured and sold by Eastman Kodak Company and Altek Corporation (collectively “Defendants”) of infringing U.S. Patent No. 4,821,121 (the “‘121 Patent” (Zado Ex. 1)). On May 23, 2006, Defendants filed their Motion for Summary Judgment of Non-Infringement and a brief in support thereof (“Defendants’ Brief”). Ampex submits this brief in opposition, and requests that Defendants’ Motion be denied in its entirety.

SUMMARY OF ARGUMENT

Defendants’ motion is grounded on five terms or phrases that appear in the claims, and assumes this Court will adopt Defendants’ construction of those words: “video”; “said data”; “direct(ly)”; “input port” and “output port”; and “external source.” According to Defendants, the first two issues affect all of the claims.¹ As demonstrated in Ampex’s opening and responsive claim construction briefs,² Defendants’ constructions are wrong, and should not be adopted. In addition, even under Defendants’ constructions, there are at least disputed issues of fact that require that Defendants’ motion for noninfringement be denied.

Video:

Defendants first construe “video” to be limited to a “series of related electronic images created for rapid display to allow the appearance of movement.” This ignores that fact that the ‘121 patent is directed to an “electronic still store.” A still store does not store moving images, nor does it necessarily store a succession of related images, whether “capable of appearance of movement” or otherwise. For example, the picture on page 7 of Defendants’ brief shows Walter Cronkite with a still image appearing over his shoulder. That still was retrieved from a still store. As explained in Ampex’s claim construction briefs, when such still pictures were originally stored in a still store, they were typically taken from a photograph, a graphic or some other static image. There is no

¹ In fact, the “said data” issue does not apply to claim 11, *infra*, Section VII.

² Referred to herein as “Ampex C.C. Br.” and “Ampex Resp. Br.”, respectively.

justification for imposing Defendants' narrowing limitation, directed to motion video, on the claims. (Ampex Resp. Br. 5-6, 8-9). And there is no dispute that Defendants' cameras infringe under the correct definition of video, proposed by Ampex and supported by the intrinsic and extrinsic evidence.

However, even under Defendants' narrow definition, the "burst mode" operation in the accused cameras literally infringes. Furthermore, there are at least disputed issues of fact as to whether Defendants' cameras infringe under the doctrine of equivalents. Defendants seek to cut off the equivalents fact inquiry by resort to the "all elements rule." But that doctrine does not apply to the issue of "video" and its equivalents. The all elements rule bars application of the doctrine of equivalents if it would vitiate claim element "in its entirety." The word "video" is an adjective used in certain claim elements, and Ampex's equivalents analysis does not come close to vitiating any claim element.

As to the merits of equivalents itself, the Court need only consider the above example of Walter Cronkite and his over-the-shoulder photo. The record does not know, nor should anyone care, how that digitized picture was originally inserted into the still store from which it was retrieved. Perhaps it was done by pointing an ordinary TV camera at a picture on an easel. If so, then it would have likely been "video" as Defendants define it, because the TV camera does output a succession of frames that *could* allow appearance of motion — albeit in this case the output would only be a succession of identical frames. But it could just as well have been generated from a digital scanner, which would scan a single frame. Despite the indisputable fact that such a digital image was called a "video image" in 1983,³ Defendants' definition would exclude it as a video image. And yet, the result in each case is an identical digitized image made up of rows and columns of pixels. There would be no way for anyone to determine whether a still picture stored in a still store

³ Ampex C.C. Br. 16-17; Ampex Resp. Br. 10.

came from a TV camera or a scanner. The jury should be given the chance to determine for itself whether the one image importation method is equivalent to the other.

Defendants also raise nonequivalence arguments directed to allegedly different ways that images are viewed on Ampex's still store products versus the way that they are viewed on Defendants' cameras. But Defendants ignore the fact that their own cameras are designed to be connected, and their manuals teach that their cameras be so connected, to high resolution monitors, via a computer, for final viewing of the captured images stored in the camera. When so used, Defendants' cameras are no different on this score from Ampex's still store products. Both are used to retrieve and display in its entirety the stored full size images at their full resolution, using standard television display techniques.

Said data:

Defendants' noninfringement case next relies on Defendants' definition of "said data" (and similar phrases) in the claims, as limited to "numerical information." However, that definition is incorrect, because it would prevent the claims from reading on the preferred embodiment of the '121 patent, a construction that is "rarely, if ever, correct." (Ampex C.C. Br. 20). Ampex's definition of data as information in any form, representing a video image, is in accord with the '121 specification. Under that definition, Defendants' cameras infringe. At the moment that the user presses the shutter button of the camera to capture an image, all of the information for that image is captured, and does not change throughout the rest of the processing steps that it undergoes.

But even under Defendants' narrow definition of "data," there are genuine disputes as to whether Defendants' cameras infringe, at least under the doctrine of equivalents. Kodak's arguments to the contrary are reminiscent of the indirection employed by a magician. Kodak flourishes its "CFA interpolation" technique, calls out its "white balancing" act, festoons the stage with various "color balancing" and "edge enhancement" sideshows, and goes out with a "JPEG compression" bang. But what are they to the '121 patent, and what is the '121 patent to them? These image processing techniques are irrelevant to the purpose of the '121 patent, which is to store,

rapidly search for and retrieve images. It is commendable that Defendants' make use of these image processing techniques to satisfy its customers' desire for good photos, but that is not what the '121 invention is concerned with. By invoking these image processing operations, Defendants are engaging in diversionary tactics, which do not excuse or vitiate the fact that they are using at least the legal equivalent of Ampex's technology without permission.

It is telling that all of these image processing techniques are either explicitly discussed in the '121 patent itself, or were in common use at the time of the '121 application. In 1983, however, most such image processing was commonly done "upstream" of the still store components that the '121 patent discusses. In particular, many such techniques, such as edge correction and white balancing, were performed in the television cameras of the day. But, as everyone now knows, since the '121 patent was filed, the electronics industry made tremendous progress in miniaturization of components. The result is that Defendants' digital still cameras are miniaturized cameras packaged together with miniaturized still stores in one enclosure. And so it is a matter of routine, equivalent, designer's choice as to where in the processing chain to place the various "white balancing", "interpolation" and other routine processing techniques. Such "post-filing" developments in the art make up the classic example of how a case of equivalents is made. The fact that such techniques happen to intervene between creation of the claimed antecedent "data," and the storage of "said data" in the claims, is not a substantial difference, insofar as the '121 invention is concerned. Given all this, and further considering that the intent of Defendants' cavalcade of image processing techniques is to faithfully capture the object of scene that the camera was originally pointed at, the jury should be permitted to decide whether the data that is processed is equivalent to the original, captured data.

Defendants again attempt to block the equivalents inquiry by invoking the "all elements" rule. That rule is equally inapplicable to the phrase "said data" — which is not a claim element. Defendants also rely on *Festo*, because "said data" and the like were added by amendment to some of the claims. In the first place, only claims 7, 8, 10, and 14 were so amended. Therefore, as to

claims 11, 12, 13, and 15, the *Festo* doctrine does not apply. Moreover, for the claims subject to *Festo*, two of the well established exceptions to *Festo* apply here. First, there is no relationship whatsoever between the reasons that led to the amendments during the '121 prosecution, and the infringement issues raised here. Second, the alleged equivalents represent later-developed technology that would not have been foreseeable at the time of the amendment.

Direct; directly:

As to claims 7, 8 and 10, Defendants have latched onto an isolated statement in the prosecution history to justify their construction of "direct" or "directly" in these claims as limited to the transfer of data "without intervening circuitry." As Ampex has demonstrated, this construction takes an obviously erroneous statement by the prosecuting attorney out of context, and attempts to create a "disavowal of claim scope" that is not there. (Ampex C.C. Br. 30; Ampex Resp. Br. 15-17.)

Even Defendants have realized that their proposed construction is unsupportable, and so they have modified it on their briefs to make it sound more reasonable. Now, a direct transfer is one that transfers data "without passing through the CPU or any other circuitry that would permit processing." (Kodak's C.C. Br., p. 14). This construction is also incorrect, and should not be adopted. However, under this construction, four of Defendants' six accused families of cameras literally infringe claims 7, 8 and 10, because they transfer data using a technique called "direct memory access," in which the data does not pass through the CPU or any other such circuitry.

Input Port; Output Port:

Defendants argue claims 8 and 14 do not infringe because they do not have physically separate input and output ports. In the first place, these claims do not have this requirement. (Ampex C.C. Br. 34-35; Ampex Resp. Br. 19-20). In addition, Defendants' are playing line drawing games. Although the memory chips in Defendants' cameras are packaged with a set of multiplexed input/output pins, inside the chips there are two ports, one for input and one for output.

External Source:

Defendants assert that claim 12 is not infringed because the “camera” portion of the accused digital still cameras is inside the same enclosure as the still store portion of the digital still cameras. This requirement of physical separation is not a legitimate claim requirement — Defendants are trying to limit the claim to the preferred embodiment. (Ampex C.C. Br. 35-36; Ampex Resp. Br. 21-23). In any event, there is at least a genuine fact dispute as to whether, given the above discussed post-filing trend in miniaturization of electronic components, the camera/still store miniaturized combination of the accused cameras is at least the equivalent of the claimed system.

STATEMENT OF FACTS

I. THE RELEVANT PARTIES

Ampex has been a pioneer in the fields of visual information and data recording technologies for more than sixty years. The areas in which Ampex demonstrated technical excellence are not limited to “analog video technology for broadcast television,” as Defendants assert, but encompass all areas of digital image processing and storage. Zado Dec. ¶5; Ex. 2.

Defendants are manufacturers of digital still cameras that store still images, just like the Ampex series of electronic still stores.⁴ However, far from being a “pioneer” in the development of digital cameras, Defendant Kodak was “hindered by a reluctance to phase out celluloid film,” and “badly misjudged the speed with which digital photography would erode its core traditional business.” Zado Exs. 3, 4. As a result, Kodak did not “begin selling mass marketing digital cameras until 2001.” Zado Ex. 3. At that point, Kodak purchased or allied itself with the other Defendants in this action who designed and manufacture Kodak’s present product line. (D. Br. p. 6).

REDACTED

⁴ As described in the Second Declaration of Dr. George T. Ligler ¶¶10-12, today’s digital still cameras, including the Kodak digital cameras, are miniaturized still store systems (*i.e.* the combination of a still store and a CCD camera) packaged within a single housing.

REDACTED**II. THE '121 PATENT DISCLOSURE**

The '121 patent is entitled "Electronic Still Store With High Speed Sorting And Method Of Operation." An electronic still store in 1983 was, and now is, understood by persons of ordinary skill in the art to be a device that stored still images in electronic form. Cav. ¶27. As described in more detail in Ampex's claim construction submissions, electronic still stores were used to replace hard copy pictures and slides, *i.e.*, they were electronic systems for storing pictures for later use and display. Neither electronic still stores in general, nor the still store systems described and claimed in the '121 patent in particular, are limited to the "broadcast television context." Cav. ¶¶ 27-28; Ampex C.C. Br. 17-19.

The '121 invention solves a problem with still stores that others had previously tried, but failed, to solve: as more and more images were stored on a still store, it became harder to rapidly review a large library of images and select a particular image for further use. *See* Zado Ex. 1, 1: 27-43; Ex. 6, 3:39-43. >

REDACTED

Ampex's

claim construction submissions further discuss the prior art failed attempts to solve this problem, and the manner in which the '121 invention solved it. Ampex C.C. Br. pp. 3-6.

Like all still stores, the '121 patent includes hardware and circuitry for receiving and storing images. Thus hardware and circuitry of the preferred embodiment is detailed in Ampex's claim Construction Submission. Cav. ¶¶34-36; Ampex C.C. Br. pp. 3-6

As one of ordinary skill in the art would have recognized, the process of capturing an image in an electronic still store, such as the embodiments disclosed in the '121 patent, as well as commercially available still stores, such as Ampex's ESS-2 and ESS-3 and the Quantel DLS 6000,

⁵ Defendants have adopted the same groupings based on the operation of the Kodak cameras. D.Br. p. 11.

involves several steps.

REDACTED

A. The Preferred Embodiment Discloses the Use of Image Processing in the Described Still Store System

The '121 patent also describes various forms of image processing on the digital data representing images captured by the system, both to enhance the representation of the captured image, and to format the image as appropriate for storage. Bonc. ¶43; Ligler C.C. ¶¶74-75.

The '121 patent expressly discloses the use of compression for digital data representing video images. Compression is a type of processing that reduces the amount of storage space required for a given set of data (e.g., data representing an image). In particular, the '121 patent discloses lossy compression through subsampling of chrominance data. Zado Ex. 1, 3:16-34; Bonc. ¶¶44-48; Ligler C.C. ¶75.

Further, the very process of converting an analog video signal to a digital format (as performed in the '121 patent preferred embodiment) is lossy, and the amount of loss depends upon the sampling precision of the conversion process. Bonc. ¶¶49-50. The '121 patent describes the selection of varying bit resolutions for each of the color components for a given pixel following analog to digital conversion. Thus, the patent teaches that varying amounts of data can be discarded in order to save on memory storage requirements, at the cost of reduced image resolution, or vice versa. *Id.*

In addition to the various encoding and processing steps expressly disclosed in the '121 patent, one of ordinary skill in the art at the time of the '121 patent application would have recognized that other forms of processing were commonly used in connection with the generation and storage of digital pixel data used to represent images. Bonc. ¶¶51-52. For example, as of the time of the '121 patent application, TV cameras, (*i.e.* examples of a video input circuits) included various forms of processing to provide for the enhanced representation of images. Bonc. ¶52.

One example of image processing included in video input circuits at the time of the '121 patent application is automatic white balancing. White balancing is a type of image processing used to ensure that, for images captured by a system (such as a still store or digital camera) the color white actually appears white, and shades of gray do not contain any additional colors. At the time of the '121 patent inventions, television cameras that could be used with still store systems, including Ampex's BCC-20 CCD camera, included automatic white balancing. *See, e.g.*, Bonc. ¶¶56-63. Another example of the type of processing included in television cameras in the 1982-83 timeframe for enhancement of image representation is edge enhancement. Edge enhancement is a process that increases high spatial frequency information to provide for an apparent sharpening in the edges of images.

REDACTED

B. Transfer Of Image Data In The '121 Patent Preferred Embodiment

While the '121 patent does not specify any particular mechanism by which data must be transferred between framestore and disc store, the '121 patent explicitly discloses the use of a Z80 microprocessor as the preferred embodiment of the CPU. Zado Ex. 1, 3:34-36. Based on this disclosure, the sole Figure of the '121 patent would be understood by a person of ordinary skill in the art to disclose at least two potential direct paths between the disk and the RAM of the framestore: either the data to be transferred could be latched via the CPU in a block transfer process, or a separate Direct Memory Access ("DMA") controller could be used to effect a DMA transfer. Ligler CC ¶¶99-106. Thus, Kodak's cite to the description of which systems are controlled by the CPU does not in any way support their claim that "the '121 patent does not describe transfer of image data to the CPU."

REDACTED

C. Storage Of Data From The RAM To The Bulk Storage In The '121 Patent Preferred Embodiment

As one of ordinary skill in the art would understand in reviewing the '121 patent, during this process of transferring the data for the video image, the data recorded on the magnetic disk storage system would not be mathematically identical to the data for the video image as stored in the framestore, because data, as stored on a magnetic hard disk, would be encoded using formats appropriate for more permanent storage of large amounts of data. Ligler CC ¶76.

REDACTED

⁶ Kodak's mischaracterizes the arguments in the '121 file history regarding the addition of the direct transfer limitation as being necessary to allegedly avoid "unnecessary circuitry processing delays." These arguments were made in connection with distinguishing the still store systems disclosed in the '776 patent, which could only perform size reduction between framestore and disc store. Because of such a physical arrangement, these system were unable to automatically generate a reduced size image for each full size image prior to storing that full size image in the disc store. See Cav. ¶¶63-65.

REDACTED

III. THE ACCUSED KODAK DIGITAL CAMERAS

The accused Kodak digital cameras are electronic still stores. Ligler ¶10; Cav. ¶8; *see* Zado Ex. 13, pp. 5, 9. The Kodak digital cameras each include the same general architecture for capturing, storing, and reviewing digital images.

REDACTED

A. Capture And Storage Of Images In The Kodak Digital Cameras

REDACTED

REDACTED

B. Operation Of CCD Image Sensors

REDACTED

REDACTED

When a system with a single CCD image sensor is used to capture an image, the sensor generates analog signals representing the pixel values for a captured image. The analog signals are then supplied to an analog to digital converter, which is used to generate digital pixel data for a digital image. This digital data representing the image is encoded in what is referred to as "CFA format." Bonc. ¶¶84-86.

REDACTED

[REDACTED] As one of ordinary skill in the art would have understood at the time of the '121 patent application, it would be a routine design choice to select between using a three-CCD image sensor arrangement to generate a full set of RGB pixel data representing an image, or using a single CCD image sensor to generate a set of subsampled RGB pixel data representing an image, followed by CFA interpolation. Bonc. ¶88.

C. Characterization Of CFA Image Data

REDACTED

⁷ These two approaches were analogous to similar approaches previously used for color camera tubes. See U.S. Patent 4,166,280; Bonc. ¶82.

REDACTED

When displayed as properly interpreted, the images would neither be black and white, nor substantially different, as Defendants contend.

REDACTED

REDACTED

REDACTED

This is no different than

the disclosure of the '121 patent, in which data for an image, once stored in SDRAM, is processed as appropriate for storage on a disc store, and stored therein; the data remaining in the framestore is then overwritten once a new image is read into the framestore. *Id.*

D. The Alleged Differences In Resolution Between CFA Image Data And Primary Image Data Are Not, In Fact, Differences

Defendants also mischaracterize the resolution of the captured image in CFA format in SDRAM.

REDACTED

E. The Kodak Digital Cameras Include SDRAM Chips With Two Ports

Notably, Kodak fails to provide any documents that actually describe the structure or operation of the SDRAM chips used in the Kodak cameras.

REDACTED

F. Processing Of Image Data To Provide "Optimal Image Quality"

REDACTED

REDACTED

JPEG compression is a type of compression performed to reduce the amount of space necessary to store an image. JPEG compression, like the subsampling of chrominance information disclosed in the '121 patent, is a compression scheme based upon knowledge of human perception, *i.e.*, it identifies information that is "unimportant" to the user's perception of the image, and discards that information.

REDACTED

G. Transfer Of Image Data

REDACTED

REDACTED

H. External Source

Finally, Kodak's description of the external source used by their digital cameras is imprecise.

REDACTED

ARGUMENT

IV. THE SUMMARY JUDGMENT STANDARD IN PATENT CASES

A. The Applicable Law Of Summary Judgment

The standard for summary judgment in a patent case is the same as in any other case.

Union Carbide Corp. v. American Can Co., 724 F.2d 1567, 1571 (Fed. Cir. 1984). Summary judgment is not appropriate where genuine issues of material fact remain for trial. Fed. R. Civ. P. 56; *Celotex Corp. v. Catrett*, 477 U.S. 317, 322-24 (1986). A dispute involving a material fact is genuine if the evidence is such that a reasonable jury could return a verdict for the nonmoving party. *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 248 (1986). In making this determination, the Court views the record in a light most favorable to the non-moving party. *Id.* at 255; *Leggett & Platt, Inc. v. Hickory Springs Mfg. Co.*, 285 F.3d 1353, 1357 (Fed. Cir. 2002).

Patent infringement analysis is a two-step process. First, the Court determines the meaning of the claims as a matter of law. *Kegel Co. v. AMF Bowling, Inc.*, 127 F.3d 1420, 1425

⁹ It is unclear, to what extent Defendants contend the microprocessor chip itself is "intervening circuitry." However, the chip itself is simply a package, containing circuitry within it. Thus, a chip cannot constitute "intervening circuitry."

(Fed. Cir. 1997); *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 976, (Fed Cir. 1995).

Second, the claims, as properly construed, must be compared to the accused system to determine whether the system is within the scope of the claims. *Kegel Co.*, 127 F.3d at 1425.

Infringement can occur in two ways: either literally, or under the doctrine of equivalents.

Under literal infringement, each element of the claim at issue is found in the accused system.

Charles Greiner & Co. v. Mari-Med Mfg., Inc., 962 F.2d 1031, 1038 (Fed. Cir. 1992). The comparison of properly construed claims with alleged infringing device is a question of fact. *Prima Tek*, 318 F.3d at 1153. Infringement need only be proved by a preponderance of the evidence.

Kegel Co. v. AMF Bowling, Inc., 127 F.3d 1420, 1425 (Fed. Cir. 1997).

A claim that is not literally infringed can still be infringed under the equitable doctrine of equivalents. *Pall Corp. v. Micron Separations, Inc.*, 66 F.3d 1211, 1218 (Fed. Cir. 1995).

Infringement under the doctrine of equivalents occurs, for example, when an element of the accused device differs insubstantially from the asserted claim element. *Warner-Jenkinson*, 520 U.S. at 40.

A patentee may prove that an insubstantial change exists by showing that the substituted element of the accused device performs substantially the same function, in substantially the same way, to achieve substantially the same result. *Id.*; see also, *Leggett*, 285 F.3d at 1359. The known interchangeability of substitutes for an element in the patent can be used to demonstrate equivalence: “the known interchangeability test looks to the knowledge of the skilled artisan to see whether the artisan would contemplate the interchange as a design choice.” *Interactive Pictures Corp. v. Infinite Pictures Inc.*, 274 F.3d 1371, 1383 (Fed. Cir. 2001). Further, technological advances which “obfuscate the significance of (a) limitation at the time of its incorporation into the claim” can also be used to establish equivalence. *Hughes Aircraft v. U.S.*, 140 F.3d 1470, 1475 (Fed. Cir. 1998). Equivalence is determined “at the time of infringement.” *Warner Jenkinson Co., Inc. v. Hilton David Chem. Co.*, 520 U.S. 17, 37 (1997).

Patent infringement under the doctrine of equivalents “requires an intensely factual inquiry.” *Leggett & Platt, Inc. v. Hickory Springs Mfg. Co.*, 285 F.3d 1353, 1357 (Fed. Cir. 2002).

"Because infringement under the doctrine of equivalents often presents difficult factual determinations, a summary conclusion that a reasonable jury could not find infringement is often illusive." *Id.* at 1360 (reversing grant of summary judgment of non-infringement due to factual allegations of expert and inventor of patent-in-suit).¹⁰

The doctrine of prosecution history estoppel may, in certain circumstances, bar a patentee from asserting as an equivalent subject matter surrendered during prosecution of the patent. *Eagle Comtronics, Inc. v. Arrow Commc'n Labs., Inc.* 305 F.3d 1303, 1316 (Fed. Cir. 2002). Estoppel may be raised in two ways: by amendment to a claim, or by argument to overcome or distinguish a reference. *Id.* However

prosecution history estoppel does not arise in every instance where a patent application is amended. (The Supreme Court's) "prior cases have consistently applied prosecution history estoppel only where claims have been amended for a limited set of reasons," such as "to avoid the prior art, or otherwise to address a specific concern – such as obviousness – that arguably would have rendered the claimed subject matter unpatentable."

Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co., Ltd., 535 U.S. 722, 122 S.Ct. 1831, 1839 (2002). Even if the presumption of a bar is raised, "its reach *requires* an examination of the subject matter surrendered by the narrowing amendment." *Id.* at 1840 (emphasis added). There are three instances in which the patentee may overcome the presumption of an estoppel:

The equivalent may have been unforeseeable at the time of the application; the rationale underlying the amendment may bear no more than a tangential relation to the equivalent in question; or there may be some other reason suggesting that the patentee could not reasonably be expected to have described the insubstantial substitute in question. In those cases the patentee can overcome the presumption that prosecution history estoppel bars a finding of equivalence.

Festo, 535 U.S. at 740-41; see *Instutiform Tech., Inc. v. CAT Contracting, Inc.*, 385 F.3d 1360, 1368-69 (Fed. Cir. 2004). "(I)f the alleged equivalent represents later-developed technology ... or

¹⁰ Thus, contrary to Kodak's assertion, a consideration of infringement under the doctrine of equivalents is not so readily amenable to summary judgment. In fact, the case cited by Kodak for this proposition – *Freedman Seating Co. v. American Seating Co.*, 420 F.3d 1350, 1361 (CAFC 2005) – dealt with consideration of infringement under the doctrine of equivalents not during summary judgment, but following a jury trial.

technology that was not known in the relevant art, then it would not have been foreseeable.”

SmithKline Beecham Corp. v. Excel Pharma. Inc., 356 F.3d 1357, 1363 (Fed. Cir. 2004).

**V. ASSUMING DEFENDANTS' CONSTRUCTION OF VIDEO IS ADOPTED,
MATERIAL ISSUES OF FACT EXIST AS TO WHETHER THE KODAK
CAMERAS GENERATE AND STORE VIDEO IMAGES AND VIDEO DATA**

As explained in Ampex’s C.C. Brief, a “video” image is “an electronic signal representation of visual information displayable in visual form on a monitor or other display device.” Ampex C.C. Br. 13. If the Court adopts this construction, the Kodak cameras literally meet the “video” elements of the ‘121 patent claims.

Defendants seek summary judgment only under their construction of video: “a series of related images created for rapid display to allow the appearance of movement.” For the reasons set forth in Ampex’s claim construction brief, this construction is improper. Even assuming Defendants’ construction were to be adopted, at least fact issues exist as to whether an image captured in the normal picture taking mode of the Kodak digital cameras is one of “a series of related images created for rapid display.”

Contrary to Defendants’ assertion, the accused cameras have *everything* to do with an electronic still store device for storing video images. The Kodak digital cameras are electronic still stores; as Defendants do not dispute, they store still images. They capture these images from sources of video data: a CCD image sensor. Both the datasheet for the AD9991 CCD signal processor used in many of the Kodak digital, as well as Kodak’s own patents, refer to the output of a CCD image sensor in a digital still camera as video, regardless of whether it is outputting a movie or a single image. Ligler ¶¶28-31; Ligler Ex. 3, AX202039; Ex. 4, 6:52-56; Ex. 5, 4:22-23; Ex. 6, 1: 6-13, 55-68; 2:1-9. The only difference identified by Defendants – that the accused cameras are not used in a “television broadcast setting” – is not part of Defendants’ proposed construction, nor does

it accurately reflect the applications in which electronic still stores were used as one of ordinary skill in the art would have understood in 1983. *See, Section II, supra.*¹¹

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Defendants fail to address Ampex's contention that the accused Kodak cameras literally meet the video limitation under Defendants' construction when operated in Burst mode. *See Ligler ¶ 34.*

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Thus, at least issues of fact exist as to whether burst mode operation literally meets defendants construction of video.¹²

Ampex's expert, Dr. Ligler, did not concede that no literal infringement exists under Defendants' construction of video. [Indeed, the portion of Dr. Ligler's transcript cited by Defendants, when viewed in its entirety, makes clear that Dr. Ligler was not testifying about

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¹² To the extent Kodak would apply its arguments against equivalence to the question of literal infringement of burst mode, such arguments are addressed in Section __, *infra*.

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A. At Least Fact Issues Exist As To Whether Images And Data Captured By The Kodak Digital Cameras Are The Equivalent Of Video Images And Video Data

The appropriate function of video data (or video pixel data), even under Kodak's construction, is to represent a video image captured by the system;

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Kodak's own patents and other documents demonstrate this fact. For example, U.S. Patent No. 5,440,343 is directed to "An electronic imaging system ... that records both motion and still video images." The motion video images are "medium resolution motion images at a standard frame rate" for a "motion" mode. The still video images are "high resolution still images at a much lower frame rate" to "record a still image" in digital form on flash memory. Ligler ¶37.

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Defendants attempt to distinguish the operation of the normal picture taking mode when a series of related images are first displayed in preview, and then one image is captured in response to the user pressing the shutter button, on three grounds:

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These assertions reflect a fundamental misunderstanding of the operation of the still store system disclosed in the '121 patent.

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As to Defendants' second point, this again is no different than the embodiment disclosed in the '121 patent, or the operation of conventional still store systems when capturing video images. In a still store, the contents of the framestore are continuously overwritten until the user selects to freeze the image in the framestore. Once the user has frozen the image in the framestore, this process of continuously writing the next frame of video into the framestore is terminated.

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As an initial

matter, neither of these requirements – *i.e.*, that video data must be captured from “a television signal,” or that it must be captured at “a display resolution,” – are included in either the literal language of the claims, or Kodak’s proposed constructions thereof. More particularly, the word “television” is used nowhere in the ‘121 patent claims or in Kodak’s proposed construction; similarly, only claims 12 and 15 even mention displaying an image, and do not require displaying that image at any particular “display resolution.”[§]

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There is no support for this assertion in either Kodak's claim construction, or the disclosure of the '121 patent. As one of ordinary skill in the art would understand, video images can undergo substantial processing, even under Kodak's proposed construction, and still be identified as a video image. Bonc. ¶187. Indeed, the '121 patent preferred embodiment processed video images, including subsampling of chrominance information, and still characterizes those images as video images, and the data representing those images as video data. Bonc. ¶188. Moreover, TV cameras (*i.e.* examples of video input circuits) performed substantial processing on video images, including automatic white balancing, edge enhancement, color correction and others; even Defendants cannot dispute that the output of such cameras would output "video" under their definition. Bonc. ¶189.

Defendants' Brief further asserts that the images and data that are captured by the Kodak cameras cannot be the equivalent of the claimed video images and video data because they are stored in lossy JPEG compressed format that requires additional processing to decode the data. Again, there is no support for this position in either Kodak's claim construction or the '121 patent disclosure. Defendants' Brief offers no evidence to support the contention that a video image (*i.e.*, an image generated from a series of related images (that allows the appearance of movement)) cannot be JPEG compressed. The JPEG standard itself states that the recommendations contained therein were based on the testing and compressions of video images. In fact, as one of ordinary skill in the art would recognize, and as is disclosed in the '121 patent, lossy compression was performed on video images in the 1983 time frame. Bonc. ¶193.

B. Finding That The Images And Data Generated By The Accused Kodak Digital Cameras Are Equivalent To Video Data Would Not Vitiate That Claim Element

The application of the doctrine of equivalents would not “vitiate” any elements of the asserted claims. Rather, Defendants’ improper reading of the all elements rule would, as the Federal Circuit has cautioned, render the doctrine of equivalents analysis no more than a repetition of the literal infringement analysis.

The all elements rule states no more than that “(t)he determination of equivalence should be applied as an objective inquiry on an element-by-element basis.” *Warner Jenkinson*, 520 U.S. at 18. Thus, under the all elements rule, each element of a claim must be present in the accused apparatus, either literally, or by equivalent. This does not mean, however, that subject matter that is “beyond,” “ignored” by, or not included in the literal scope of a claim is by definition not capable of being equivalent.

In *Ethicon v. Endo-Surgery, Inc. v. United States Surgical Corp.*, 149 F.3d 1309 (Fed. Cir. 1998), to which defendants cite to in their brief, the alleged infringer made the identical argument that Kodak raises here, *i.e.*, that the application of the doctrine of equivalents was prohibited because to do so would vitiate claim elements. As the Federal Circuit made clear, this reasoning is inherently flawed:

We agree with Ethicon that, if read as argued by (alleged infringer) USSC, the above-quoted statements from *Dolly*, *Weiner*, and *Sage* would force the All Elements rule to swallow the doctrine of equivalents, reducing the application of the doctrine to nothing more than a repeated analysis of literal infringement. Once a negative determination of literal infringement is made, that failure to meet a limitation would preclude a finding of infringement under the doctrine. The doctrine of equivalents would thus be rendered superfluous under USSC’s view, because a finding of non-infringement would be foreordained when a court has already found that the accused subject matter does not literally fall within the scope of the asserted claim. However, any analysis of infringement under the doctrine of equivalents necessarily deals with subject matter that is “beyond,” “ignored” by, and not included in the literal scope of a claim. Such subject matter is not necessarily “specifically excluded” from coverage under the doctrine unless its inclusion is somehow inconsistent with the language of the claim. Literal failure to meet a claim limitation does not necessarily amount to “specific exclusion.”

Id. at 1317 (citation omitted); *see also Eagle Comtronics, Inc. v. Arrow Commc'n Labs., Inc.* 305 F.3d 1303, 1317 (Fed. Cir. 2002). In the case of “video images” and “video data”, Kodak asserts, with no support, that “permitting the claims to be met by **any** ‘pixel data’ and **any** image – regardless of source – would render the word video superfluous as used in the terms ‘video pixel data’ and ‘video image’.” This assertion is incorrect in at least two ways.

First, Kodak’s argument is simply that, under its construction, if an image or pixel data is not literally a “video image” or “video pixel data,” *ipso facto*, that image or pixel data cannot be the equivalent of video images or video pixel data. This is an improper reading of the all elements rule, and indeed would reduce the doctrine to an “all words” rule. Indeed, the word “video,” in isolation, is not a claim element (as Defendants would portray). Using claim 7 as an example, the “video” elements of the ‘121 patent claims are, more appropriately: “video pixel data representing video images of a first resolution ... a corresponding video image at a second resolution,” “video pixel data representing one of a succession of full size images ... and a corresponding reduced size version thereof.”

Second, Ampex has not asserted that “any” pixel data or “any” image would be the equivalent of “video images” or “video pixel data.” Indeed, what Ampex has accused of meeting the video pixel data and video image elements of the ‘121 patent claims are images and pixel data that:

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C. At Least Issues Of Fact Exist As To Whether The Images And Data Captured In Burst Mode Are Equivalent To Video Images And Video Data

The images and pixel data generated by the Type 2, Type 3A, Type 3B, Type 3C and Sunny 6 digital cameras in the burst mode of operation would be at least equivalent to the claimed

"video images," "video pixel data," and "video data" under Kodak's claim construction of "video."

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Moreover, applications which even Defendants cannot dispute are video use even lower frame rates than employed in burst mode. Ligler ¶41.

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To the

extent Kodak asserts that processing a video image would cause it to no longer be a video image, as set forth in Sections V.A.-B., such an assertion is without basis.

VI. EVEN ASSUMING THAT KODAK'S CONSTRUCTION OF THE "SAID DATA" LIMITATION IS ADOPTED, FACT ISSUES EXIST AS TO WHETHER THE KODAK CAMERAS STORE "SAID DATA" ON DISK STORAGE

Contrary to Kodak's assertion, not all of the asserted claims include the "said data" limitation. Specifically, claim 11 does not use the term "said data" or the like, and is not subject to this limitation as proposed by Defendants or to Defendants' asserted ground of non-infringement.

Ampex's proposed claim construction for "said data" as used in asserted claims 7-8, 10, and 12-15 is "data (or data sets) representing the same image as the antecedent data (or data sets)." (Joint Claim Construction Chart, p. 9).

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**A. Kodak's Contention That The Parties Agree That "Data", As Used In The
'121 Patent Claims, Is Simply "A Set Of Numbers," Is False**

Kodak's selective citations completely mischaracterize the testimony of Ampex's experts as to the meaning of data and whether the "said data" limitation is limited to the numerical values of pixels.

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Thus, as Ampex has proposed, and Ampex's experts have stated, data is information. That information could certainly be represented in numbers. However, what Defendants have ignored is that

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**B. Issues Of Material Fact Exist As To Whether The Kodak Cameras Store The
Equivalent Of Said Data**

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It is to be expected that the '121 patent does not mention that these various image processing techniques could be performed in between the initial storage of the image data in RAM and the subsequent storage on disk. Given the state of the art as of 1983, the option of packaging the camera together with the image storage and retrieval components would not have been practical or worthy of mention.

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Kodak's own patents demonstrate the equivalence of data captured in SDRAM, and the data as stored on the memory card. Kodak's U.S. Patent No. 6,542,192, which is embodied in certain of the Kodak digital cameras, describes the data for the captured image, when stored in an Exif and DCF compliant image file on a storage device (such as a memory card), as "providing an accurate reproduction of the captured image." Bonc. Ex. 18; Bonc. ¶177. Similarly, U.S. Patent 5,016,107, in referring to the JPEG compression techniques, states that, "This compression technique greatly reduces the number of bits required to represent a frame of still video information, without reduction in image quality, thereby greatly reducing the amount of storage that must be allocated" Bonc. ¶19, 6:47-51; Bonc. ¶178.

Thus, all of the image data resulting from the image processing techniques employed in the Kodak digital cameras, if not literally construed to be "said" pixel data, have the same function (representing substantially the same video images); do so in the same way or at least substantially the same way (representing the video images on a pixel-by-pixel basis); and have substantially the same result (substantially the same video image is recoverable).

C. Kodak's Characterization Of Storage Of Image Data In CFA Format Are Incorrect

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D. Kodak's Legal Arguments That An Estoppel Exists Are Without Merit

Contrary to Defendants' representations, claims 11, 12, 13, and 15 of the '121 patent were not amended to avoid a patentability issue with respect to the said data limitation. As seen in papers 25 and 28, (in which the claims that issued as 11, 13, and 15 initially were added), application claim 27 (which, via claim 29, became issued claim 11), application claims 24 and 25, (which became issued claim 13), and application claim 26 (which became issued claim 15 after been written in independent form as claim 31) were not objected to by the Examiner as having antecedent basis issue with respect to the images stored in the bulk store. *See* Paper 25, pp. 9-11; Paper 26, pp. 4-5; Paper 28, pp. 15-16, 19; Paper 30, pp. 5-6, 7, 12. As a result, these claims were not amended to overcome any such rejection. *See* Paper 28, pp. 17-18 – Paper 26, pp. 4-5. Thus, no presumption of an estoppel can apply to those claims with respect to the "said data" limitation.

With respect to claims 7, 8, 10, and 14, even assuming the presumption of a bar is raised “its reach *requires* an examination of the subject matter surrendered by the narrowing amendment.” *Festo*, 127 S.Ct. at 1840 (emphasis added). Defendants make no more showing than that certain claims were amended. However, the alleged equivalents represent later-developed technology that would not have been foreseeable at the time of the amendment. *See SmithKline*, 356 F.3d at 1363. As described in Section VI.B., *supra*, to the extent there are any differences in the image processing disclosed in the ‘121 patent to that employed by the Kodak digital cameras, those differences are attributable to the integration of the video input circuit (i.e. the CCD image sensor) within the same chassis as the circuitry used for image capture and storage.

Moreover, the rationale underlying the amendments to claims 7, 8, 10, and 14 on which Defendants rely bears no more than a tangential relation to the equivalent in question. More particularly, the purpose of the “said data” amendment in claim 7 (application claim 18), for example, was on account of the claim, as pending, reciting two operations by which image data could be stored in RAM; as a result, it was unclear whether the images stored on disc were from either or both operations (e.g., the functionality expressed in the “random access memory means” element, and that expressed in the “means for storing one at a time” element). Paper 26, p. 3, Items 26-28. As a result, the two operations were amended to incorporate the “storing one at the time” functionality into the “random access memory means” claim element, and the “said” was added to refer to that one operation of storing images in RAM, thereby making clear data sent into the bulk store came from the random access memory, and not some other source. Paper 28. The specific representation of the data was in no way related to the purpose of adding “said” to this element application claim 18.

Similarly, as to the application claims 19 (issued claim 8), and 20 (issued claim 14) disclosed two operations for storing video pixel data in random access memory. Paper 25, pp. 7-8. In the same way as with claim 7, the second operation for storing was deleted, and the claims were amended to clarify that the source of data was the random access memory, and not some other

source. (E.g., Paper 28, pp. 8-11) As to claims 23 (issued claim 10) and 28 (issued claim 12), although no particular rejection was articulated by the Examiner, it was similarly unclear what the source of data to be received by, e.g., the second store (claim 10) or the image store (claim 12). See Paper 26, pp. 4-5. The claims were amended to clarify the source of the data (not the particular numerical representation of the data). See Paper 25, pp. 10-11, 13-14.

E. Finding That The Images And Data Generated By The Accused Kodak Digital Cameras Are Equivalent To Video Data Would Not Vitiate Any Claim Elements

The application of the doctrine of equivalents would not “vitiate” any elements of the asserted claims. Rather, Kodak’s improper reading of the all elements rule would, as the Federal Circuit has cautioned, render the doctrine of equivalents analysis no more than a repetition of the literal infringement analysis.

It is not “undisputed” that the resolution of the image in CFA format is larger than that of the primary image. As set forth in Section III.D., VI.B., the effective resolution of the image in CFA format is the same as the resolution of the image in best quality mode. Any alleged difference in resolution is attributable to ring pixels, which have unstable values.

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Moreover, the ‘121 patent claims explicitly set forth the requirements of reduced size image data: Defendants do not, and indeed, cannot contend that the primary image satisfies these requirements (namely, that a plurality of such images be accessed simultaneously, that they be used to generate a mosaic of images, etc.). See Zado Ex. 1 (‘121 patent).

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Kodak’s further contention that the word “said” would be read out of the claim is equally baseless;

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VII. AT LEAST FACT ISSUES EXIST AS TO WHETHER THE ACCUSED KODAK CAMERAS SATISFY THE "DIRECT" AND "DIRECTLY" LIMITATIONS OF CLAIMS 7, 8 AND 10 UNDER DEFENDANTS' PROPOSED CONSTRUCTION

As explained in Ampex's Claim Construction Brief, the term "direct(ly)" as used in claims 7, 8, 10 and 14 should be construed to mean "The transfer path is not circuitous or roundabout, and the transferred data is not significantly processed after it has left the providing or sending structure and before it has reached the receiving structure." (See Ampex C.C. Br. at 29):

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Defendants have only argued non-infringement of asserted claims 7, 8, 10 and 14 of the '121 patent under their proposed construction: "The transfer of data without intervening circuitry" (Defendants' CC Br. at 13).¹³ If this construction were literally applied, the Kodak digital camera would not literally meet this claim limitation; however, neither the preferred embodiment of the '121 patent, nor any real world system, would meet this limitation. Ligler ¶69-70.

¹³ Ampex notes that Defendants have misstated this proposed construction in their opening brief as "a transfer 'with no intervening circuit there between.'" (D. Br. at 34). Ampex can only assume this to be an error and that Defendants' motion is properly cast under Defendants' proposed construction, as set forth in Joint Claim Construction chart at Construction 21.

However, Defendants' Claim Construction Brief further interprets Defendants' proposed construction of "the transfer of data without intervening circuitry" to mean "without passing through the CPU or any other circuitry that would permit processing." (See Kodak's Claim Construction Brief, p. 14). This is a substantially different construction of the "direct" and "directly" limitations from that found in the Joint Claim Construction Chart.

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VIII. AT LEAST ISSUES OF MATERIAL FACTS EXIST WITH RESPECT TO WHETHER THE ACCUSED CAMERAS SATISFY THE "INPUT PORT" AND "OUTPUT PORT" LIMITATIONS OF CLAIMS 8 AND 14

As explained in Ampex's Claim Construction Brief: A "port" is an interface between a communications channel and a unit of computer hardware; An "input port" is a port for inputting

data into the claimed random access memory; and an “output port” is a port for outputting data from the claimed random access memory.

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Defendants have argued non-infringement of asserted claims 7, 8 and 14 of the ‘121 patent only under their proposed construction: “Random access memory with an input port and a separate output port.” (Defendants’ CC Br. at 15). Even under this construction, material facts exist with respect to whether the accused Kodak cameras satisfy the “input port” and “output port” limitations of claims 8 and 14 of the ‘121 patent.

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Defendants’ reliance on the testimony of Dr. Ligler to prove the contrary is misplaced. First, referenced page A470 is from the deposition of Dr. Boncelet, and is not addressed to the input port/output port issue.

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IX. AT LEAST ISSUES OF FACT EXIST AS TO WHETHER THE ACCUSED KODAK CAMERAS SATISFY THE "EXTERNAL SOURCE" REQUIREMENT OF CLAIM 12 UNDER DEFENDANTS' PROPOSED CONSTRUCTION

As explained in Ampex's Claim Construction Brief, the term "external source" as used in claim 12 should be construed to mean "A source of video images outside of the image store." Under this construction the Kodak cameras include an external source.

Defendants only assert that their digital cameras do not infringe claim 12 of the '121 patent under their proposed construction: "A source located outside of and at a separate physical location from the physical location of the other components of the video still store system." (Defendants' CC Br. at 17). However, defendants argument is not based upon this construction, but upon an additional, implicit limitation: that the source not simply be at a separate physical location, but that it must be outside "the camera."

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Defendants' claim that *Festo* bars application of prosecution history estoppel to claim 12 is unavailing. First, Defendants incorrectly assert that the external source element was added in response to a section 112 rejection. Correctly stated, application claim 28, which matured into issued claim 12 of the '121 patent, was rejected during prosecution under Section 112 paragraph 2 on the grounds that "Claims 27 and 28 require similar clarifications as exemplified above." As a result, applicant moved the existing "external source" element of application claim 28 (issued claim 12) from below the image store element, to above the image store element, and amended the language therein to correct a similar 112 problem as described in Section V.D., *supra*, that existed with respect to what was the source of data to be stored in the image store.

Moreover, to the extent this amendment can be said to raise a presumption that a bar exists to the application of prosecution history estoppel, that presumption is overcome at least: (1) because the amendment during prosecution (to correct an antecedent basis problem as to the source of data stored in the image store) is wholly irrelevant to the asserted equivalent (the physical location of the external source in relation to other components of the system); and (2) because the equivalent arises as a result of after-developed technologies

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Defendants' assertion that Ampex's equivalence theory would "vitiate the limitation by eliminating the word 'external' from the claim" (D. Br. p. 39) is yet another example of Defendants' hyperliteralization of the "all elements" rule. The incorporation of system components into smaller physical packaging as a result of technological advances does not in any way remove the fundamental characteristics of an external source, or make it simply a "source"—images are still provided by a component different than the other claimed components of the system.

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CONCLUSION

For the foregoing reasons, Defendants' Motion should be denied in its entirety.

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CERTIFICATE OF SERVICE

I, the undersigned, hereby certify that on June 20, 2006, I caused to be electronically filed the foregoing with the Clerk of the Court using CM/ECF, which will send notification of such filing(s) to the following:

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